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10/034,661

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EXAMINER

METZMAIER, DANIEL S

ART UNIT

PAPER NUMBER

1712

MAIL DATE

DELIVERY MODE

05/10/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/034,661

Applicant(s)

TREYBIG ET AL.

Examiner

Daniel S. Metzmaier

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-14, 16-40, 42-53 and 55-63 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42-46, 48-52 and 55-59 is/are allowed.
- 6) ☒ Claim(s) 3-14, 16-36 and 60-63 is/are rejected.
- 7) ☒ Claim(s) 37-40, 47 and 53 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Claims 3-14, 16-40, 42-53 and 55-63 are pending.

Claim Interpretation

1. The claims 3-14, 16-40, 42-53 and 55-63 are drafted in product-by-process format. See MPEP 2113. It is noted that claims 61-63 employ open language, i.e., "comprising", defining the agent or monomer, e.g., amine-containing monomer. The reactants are open to more than the recited amine compounds having only two reactive amino hydrogen groups claimed provided said recited groups are present or would have been obvious reactants.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3-4, 6-14, 16-26, 47, 53 and 63 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18-26 are indefinite since it is unclear what is applicants intended materials since the claim requires an amine capping monomer and an amine alkylating agents, i.e., said amine capping monomer would no longer be an amine capping monomer but a polymeric amine. The amine capping agents are not distinct from the amine reactants of claim 61 or 62. Thus, the ratio defined therein is unclear since it is unclear how much of the amines should be attributed to the ratio that are the amine

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ractants of claims 61 or 62 and how much of the amine capping agents, wherein both read on the same materials.

In claims 3 and 16, "terminal epoxy groups" lacks proper antecedent basis.

In claim 47, it is unclear what said compound is effective. Therefore, said amount is indefinite.

In claim 53, the species $\text{CH}_3\text{O}(\text{CH}_2\text{CH}_2\text{O})_n-(\text{CH}_2\text{CRHO})_n-\text{CH}_2-\text{CH}(\text{CH}_3)-\text{NH}_2$, is unclear since both subscripts are "n" and when R is H, it is unclear how the skilled artisan would determine a ratio.

Claim 63 contains misspelled terms for "glycidyl" and "said glycidyl compound" lacks antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 3, 5-10, 16, 18-23 and 60-63 are rejected under 35 U.S.C. 102(b) as being anticipated by Ott et al, US 5,324,404. Ott et al (columns 9-12, grinding resins A1-6) disclose polymer resin compositions employing DER 732 (polypropylene glycol diglycidyl ether from Dow Chemicals) reacted with 2,2'-aminoethoxyethanol ($\text{H}_2\text{NCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}$) and N,N-dimethylaminopropylamine ($(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{NH}_2$).

Applicants characterization (pages 7 and 8 of the instant specification) of aliphatic or cycloaliphatic epoxides or glycidyl compounds clearly includes glycol ethers

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as examples aliphatic or cycloaliphatic compounds. Please compare claim 5, which includes a polyether as an aliphatic compound.

Regarding claim 51, the N,N-dimethylaminopropylamine reads on the capping amine monomer and the alkylating agent is indistinct from the reaction products having complete reaction of the diglycidyl ethers or epihalohydrin capped diols since the product structures are indistinct and the halogen is a reaction by-product. Attention is further directed to claim 60(3).

Claim 60 is included in this rejection since 2,2'-aminoethoxyethanol reads on claim 60, 1)(b); when R1 is $(-\text{CH}_2-\text{CH}_2-\text{O}-)_n$, $n = 2$ and Z1 = H. DER 732 reads on components 2) and 3), which are indistinct in the final product when R8 is 2-hydroxy-3-chloropropyl. The terminal halogens would react and expected to form the same reaction products as the diglycidyl ethers. Said products reactive with the free amine nitrogens and forming a 2-hydroxypropyl linkage.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 6-10, 18-23, and 27-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ott et al, US 5,324,404. Ott et al (columns 9-12, grinding resins A1-6) disclose polymer resin compositions employing DER 732 (polypropylene glycol diglycidyl ether from Dow Chemicals) reacted with 2,2'-aminoethoxyethanol ($\text{H}_2\text{NCH}_2\text{CH}_2\text{OCH}_2\text{CH}_2\text{OH}$) and N,N-dimethylaminopropylamine ($(\text{CH}_3)_2\text{NCH}_2\text{CH}_2\text{NH}_2$).

Ott et al differs from the claims in the use of a particular polyglycidyl ether, complete reaction of the polyglycidyl ether to form the same reaction product of N-alkylating agents when the N-alkylating agents are capped with 2-hydroxy-3-chloropropyl, or the residual by-product chloride or bromide resulting from N-alkylating agents are capped with 2-hydroxy-3-chloropropyl.

Ott et al (column 6, lines 27 et seq; particularly lines 55 and 62-65) disclose a number of polyglycidyl ether or polyepoxides including but not limited to those derived from epihalohydrins, glycerol, and polyepoxide derived from the epoxidation of olefins.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the polyglycidyl ether or polyepoxides taught in the Ott et al reference as an obvious functional equivalent to the DER 732 or the epoxy resins exemplified.

To the extent the Ott et al reference differs in that the reaction of the polyglycidyl ethers are incomplete, less than 100%, or the compositions contain some residual by-product halogen, the Ott et al reference teaches the use of alternative polyglycidyl ethers and/or polyepoxides derived from epihalohydrins. It would have been obvious to one of ordinary skill in the art at the time of applicants' invention to employ the materials derived from epihalohydrins as an obvious functional equivalent to the polyglycidyl ethers and/or polyepoxides exemplified, which would have resulted in polymer compositions having the same or substantially the same structure. See MPEP 2113.

Allowable Subject Matter

9. Claims 42-46, 48-52 and 55-59 are allowed.
10. Claims 37-40 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
11. Claims 47 and 53 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

12. Applicant's arguments filed 28 February 2007 have been fully considered but they are not persuasive.
13. Applicants (page 18) assert the claims when read in light of the specification clearly set forth the and distinctly claim the amine capping agent. This has not been

deemed persuasive since the amine-capping agents are not distinct from the amine reactants of claim 61 or 62. Thus, the ratio defined therein is unclear since it is unclear how much of the amines should be attributed to the ratio that are the amine reactants of claims 61 or 62 and how much of the amine capping agents, wherein both read on the same materials.

14. Applicants (page 19) assert that the new claims, claims 61-63, exclude resins comprising an aromatic group in the backbone. This has not been deemed persuasive for the following reasons. Initially, (1) the claims are drafted in product-by-process format and do not set forth any structure. (2) The claims employ open transitional language, i.e., "comprising", which is open to elements of the claims that are not explicitly set forth in the claim. Since the Ott reference discloses both the epoxide or glycidyl compounds of aliphatic compounds and aromatic compounds, applicants amended new claims are not deemed to exclude the materials of the Ott reference.

15. Applicants (page 19) assert claim 60 is different from the Ott materials because when 60(3) R8 is 2-hydroxy-3-chloropropyl, which contains only one reactive site with an amine and 60(2) has two, one on each end of the polyoxyalkylene group. Applicants assert the materials resulting from claim 60 have polyoxyalkylene in the polymer backbone. This has not been deemed persuasive since the claims merely require reaction without sequence or concentration. Applicants' assertions of structure has not been shown to be a necessary result of the claims product by process. Thus, applicants' arguments are not commensurate in scope with the claims. Applicants have the burden of showing the claims distinguish over the prior art. See MPEP 2113.

Applicants (page 19) further assert 60(3), due to one reactive site cannot be used to grow a polymer chain. Applicants' claims do not define the degree of polymerization. Applicants characterization (pages 7 and 8 of the instant specification) of aliphatic or cycloaliphatic epoxides or glycidyl compounds clearly includes glycol ethers as examples aliphatic or cycloaliphatic compounds.

16. Applicants' characterization (pages 7 and 8 of the instant specification) of aliphatic or cycloaliphatic epoxides or glycidyl compounds clearly includes glycol ethers as examples aliphatic or cycloaliphatic compounds. Please compare claim 5, which includes a polyether as an aliphatic compound.

Conclusion

17. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

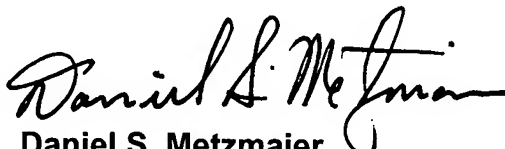
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (571) 272-1089. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Daniel S. Metzmaier
Primary Examiner
Art Unit 1712

DSM